

## **REMARKS**

With this Response, no claims are amended or canceled. Therefore, claims 1-9 and 12-14 are pending.

## **ALLOWABLE SUBJECT MATTER**

Claim 9 was objected to as being dependent upon a rejected base claim. Applicants respectfully submit that the rejection of the base claim from which claim 9 depends is overcome herein. Therefore, Applicants submit that claim 9 is allowable in the form in which it currently stands, and is allowable for at least the reasons set forth for independent claim 5 below, and not for the reasons stated on page 7 of the Office Action.

## **ELECTION REQUIREMENT/RESTRICTION**

Applicants previously filed a preliminary election with traverse in response to a Restriction mailed March 16, 2004. Applicants note that the current Office Action fails to address Applicants' traverse. Therefore Applicants again respectfully submit that the Restriction is improper, and repeat the traverse below, with added detail.

MPEP §803 establishes that a prima facie case of proper requirement for restriction requires both:

- (A) The inventions must be independent or distinct; and
- (B) There must be a serious burden on the examiner.

### **Independent inventions**

The Restriction stated, "invention I has separate utility such as a node generator without requiring if the next level of node is not assigned the logical level number of invention II." Applicants maintain that the claims of group I and group II are based upon the same inventive concept, and the Office Action appears to require Applicants to elect between methods and

apparatuses to generate a radix tree with an inventive concept, and methods to search such a radix tree. Therefore, Applicants respectfully submit that the Restriction is improper, and respectfully requests reconsideration of the restriction.

### **Serious Burden**

Furthermore, even assuming the claims of each of the groups are directed to distinct inventions, which Applicants have addressed above, Applicants submit that examination of the entire application would not be a serious burden on the Examiner. The Office Action at page 3 asserts that the claims of groups I and II are of separate subclasses of the same class. Whether or not the claims may be classified as belonging to separate subclasses, Applicants submit that in the above-referenced Application, there are common elements throughout all the claims, and a search for one claim group will thus be applicable to the other group. Applicants are thus unable to understand how a search and examination of the different claim groups of the above-referenced Application would present a serious burden on the Examiner. Therefore, Applicants submit that in accordance with MPEP §803, "the search and examination of [the] entire application can be made without serious burden, [thus,] the examiner **must examine it on the merits**, even though it includes claims to independent or distinct inventions." MPEP §803. Therefore, Applicants submit that a prima facie case of proper restriction requirement has not been established.

### **CLAIM OBJECTIONS**

Claims 5-9 and 12-14 were objected to for reason that the term "corresponding" was considered to be unclear. Applicants are unable to determine from the brief objection in the Office Action what is purported to be unclear generally about the claims or specifically the term "corresponding" in claims 5 and 12. The Office Action merely states, "the Examiner is not clear

about the meaning of the claim. "...corresponding." Thus, Applicants are unable to determine what the Office Action is requesting when it states on page 2 that "Appropriate correction is required." Because Applicants are unable to understand the objection and the corresponding request for correction, Applicants respectfully request that the particular aspect deemed unclear be specified so that Applicants may respond.

### **CLAIM REJECTIONS - 35 U.S.C. § 103**

Claims 1-8 and 12-14 were rejected under 35 U.S.C. §103(e) as being unpatentable over U.S. Patent No. 6,396,841 issued to Rochberger (*Rochberger*) in view of U.S. Patent No. 5,095,458 issued to Lynch et al. (*Lynch*). Applicants respectfully submit that the cited references fail to render obvious the invention as recited in these claims for at least the following reasons.

#### **Claims 1-4 and 12-14**

Claim 1 recites the following:

**assigning a logical level number to a symbol in a key comprising a string of symbols; and**

**storing an entry for the key in a level of nodes of a multiway radix tree based at least in part on the logical level number instead of on a path between nodes representing every symbol in the key.**

Claim 12 recites elements directed to a logical level number corresponding to a key length.

The Office Action at page 2 admits that *Rochberger* fails to disclose at least a logical level, and cites *Lynch* as disclosing this limitation. As Applicants have understood the reference, *Lynch* discusses a tree structure for performing carry lookahead. See col. 3, lines 34 to 46; also, Summary at col. 4, lines 12 to 30. *Lynch* thus discusses levels of **logic**, meaning hardware for performing logic operations in an adder, e.g., a NAND function. See, e.g., col. 8, lines 10 to 18; col. 4, lines 12 to 30; Figures 5 and 6. *Lynch* fails to disclose or suggest a radix tree for key

searching, and fails to disclose or suggest a logical level number to be assigned to a symbol in a key, as recited in claim 1, or assigned to a node, as recited in claim 12. Applicants therefore submit that *Lynch*'s logic design to prevent trees from becoming "large and inefficient to layout for large adds," col. 3, lines 40 to 41, emphasis added, fails to cure the deficiencies of *Rochberger* recognized in the Office Action. Therefore, the cited references, either alone or in combination, fail to disclose or suggest at least this element of the invention, and so fail to establish *prima facie* obviousness as set forth in MPEP §2143.

Because dependent claims necessarily include the limitations of the independent claims from which they depend, Applicants respectfully submit that dependent claims 2-4 and 13-14, which depend respectively from claims 1 and 12, are not rendered obvious by the cited references for at least the reason set forth above.

### **Claims 5-8**

Claim 5 recites the following:

creating a root node and first-level nodes of a tree for storing keys in a memory, each key having a string of symbols;

creating a pointer from the root node to a node in the first-level of nodes corresponding to the first symbol in a key;

creating a second level of nodes to store an entry for the key in a node corresponding to the last symbol in the key; and

**creating a pointer from the node in the first-level of nodes corresponding to the first symbol in the key to the node in the second level of nodes corresponding to the last symbol in the key.**

Applicants note that although the Office Action asserts that *Rochberger* discloses assigning a number to a symbol in a key, the Office Action fails to explain what in *Rochberger* is purported to be a symbol in *Rochberger*'s keys, or whether or how such symbols would be assigned a number. As Applicants have understood, *Rochberger* discusses that a tree has nodes of different levels, and a search is performed by starting with nodes furthest out from the root,

and searched back inward. The nodes that are furthest out have a backward pointer to the node of the next level down. Thus, the reference only describes a tree with nodes having pointers from one level to the next level. See col. 11, line 58 to col. 12, line 42. Thus, even assuming that something in *Rochberger*'s keys may be referred to as symbols that are assigned numbers, which Applicants do not concede, in contrast to the cited reference, claim 5 recites creating a pointer from the node in the first-level of nodes corresponding to a first symbol in a key to a node in a second level of nodes corresponding to the **last symbol** in the key. Nothing in the cited reference suggests that a pointer from one node in *Rochberger*'s tree would point to anything other than the next (or in the case of the "previous" pointers, the previous) -level node in the tree. Applicants submit that the search methods of *Rochberger* assume that this is the case, and begin at the node of longest key length, and step down one node-level at a time until the matching key is found. Therefore, Applicants submit that the cited reference fails to disclose or suggest the invention as recited in claim 5. Applicants further note that *Lynch* was not cited as disclosing any of the limitations of claim 5, and in fact fails to cure the deficiencies of *Rochberger*. Thus, the cited references, alone or in combination, fail to disclose or suggest at least one element of the claimed invention, as so fail to render obvious the invention as recited in this claim.

Because dependent claims necessarily include the limitations of the independent claims from which they depend, Applicants respectfully submit that dependent claims 6-8, which depend from claim 5, are not rendered obvious by the cited references for at least the reason set forth above.

## **CONCLUSION**

For at least the foregoing reasons, Applicant submits that all rejections have been overcome, placing all pending claims in condition for allowance. Such action is earnestly

solicited. The Examiner is respectfully requested to contact the undersigned by telephone if such contact would further the examination of the above-referenced application.

Please charge any shortages and credit any overcharges to our Deposit Account number 02-2666.

Respectfully submitted,  
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